

ABSTRACT

An automatic transmission is specially developed for light-vehicles driven by V-Twin engines and which utilize a separate transmission housing from the engine, and where the transmission is connected with the engine output shaft by a suitable linkage. The transmission includes a main input drive shaft oriented parallel to the engine output crankshaft, and a coaxially aligned drive output shaft. The transmission contains within a gear box a ring gear, planetary gears mounted to a planetary carrier which is mounted to the output shaft, two sun gears, a pair of clutch assemblies and two braking mechanisms. A first clutch assembly includes a clutch drive coupled to the input drive shaft, and an array of clutch plate. The second other clutch assembly is used to couple or uncouple the ring gear to the input shaft for rotation therewith. A one-way clutch is engaged through the actuation of the clutch drum to engage a first ring gear. The first ring gear in turn engages at least two and preferably four groups of idle planetary gears mounted to the planetary carrier. The idle gears in turn mesh with and rotate a first diameter end of an associated compound planetary gear also provided on the planet gear carrier, and which also mesh with the ring gear. The compound planet gears also include a second diameter portion which extend axially, so as to mesh with and engage the second other output sun gear. The brake assemblies are selectively operable to engage the second sun gear and ring gear to permit and/or prevent their relative rotation. The clutch assemblies and brake assemblies are used to enable or stop rotation of ring gear and/or planetary components to change transmission ratio or direction of rotation.